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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,210	06/28/2004	Tetsuo Yamashita	360842011300	2598

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EXAMINER

CHEN, WEN YING PATTY

ART UNIT	PAPER NUMBER
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2871

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Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 10/500,210	Applicant(s) YAMASHITA ET AL.	
	Examiner Wen-Ying P. Chen	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 5-6, 9-10, 12, 14 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakagi (JP 2001-281648).

With respect to claim 5: Nakagi discloses in Figure 2 a color filter for a liquid crystal display comprising transmissive regions (region corresponding to element 3a) and reflective regions (region corresponding to element 2), wherein at least two types of colored layers are deposited in the transmissive region of each of picture elements of at least one color (Paragraphs 0032-0035).

As to claim 6: Nakagi further discloses in Figure 2 that a first colored layer (element 3a) is formed in each transmissive region, and a second colored layer (element 3b) is formed on the first colored layer and in each reflective region.

As to claims 9, 10 and 12: Nakagi further discloses in Paragraphs 0032-0036 that the green colored layers, the red colored layers and the blue colored layers having different pigment compositions are laminated.

As to claim 14: Nakagi further discloses in Figure 2 that an over coat layer (element 6) is deposited on the colored layers (element 3).

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As to claim 16: Nakagi further discloses in Figure 1 that a transfective liquid crystal display comprises the color filter of claim 5.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagi (JP 2001-281648) in view of Chang et al. (US 6867833).

With respect to claim 1: Nakagi discloses in Figures 1 and 2 a transflective liquid crystal display comprising a pair of substrates (element 1) disposed opposite to each other with a liquid crystal layer (element 7) held there between, a reflection means (element 2) using ambient light as a light source, a backlight source (not show, Paragraph 0003), and a color filter (element 3) having a transmissive region (element 5) and a reflective region (element 4) which are provided in each picture element of the color filter and which have colored layers comprising a single material.

Nakagi fails to specifically disclose that a three-peak type LED backlight source is being used as the backlight source.

However, Chang et al. teach the use of a three-peak type LED backlight source in a transflective type liquid crystal display device in Column 7 lines 43-45.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a transflective liquid crystal display device as taught by Nakagi wherein the backlight source is a three-peak type LED backlight as taught by Chang et al., since Chang et al. teach that by using the three-peak type LED backlight together with the color filters enhances the color saturation of the display device (Column 7, lines 46-47).

As to claim 3: Nakagi further discloses in Figure 1 that the color filter (element 3) includes the picture elements of at least one color in each of which the colored layers of the reflective region (element 4) and the transmissive region (element 5) have different thickness.

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Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagi (JP 2001-281648) in view of Chang et al. (US 6867833) and further in view of Kim et al. (US 2002/0018159).

Nakagi discloses in Figure 4 a transflective liquid crystal display comprising a pair of substrates (element 1) disposed opposite to each other with a liquid crystal layer (element 7) held there between, a reflection means (element 2) using ambient light as a light source, a backlight source (not show, Paragraph 0003), and a color filter (element 13) having a transmissive region (element 5) and a reflective region (element 4) which are provided in each picture element of the color filter and which have colored layers comprising a single material, wherein the colored layers of the transmissive region and the reflective region have the same thickness.

Nakagi fails to specifically disclose that a three-peak type LED backlight source is being used as the backlight source and that an aperture is formed in the reflective region.

However, Chang et al. teach the use of a three-peak type LED backlight source in a transflective type liquid crystal display device in Column 7 lines 43-45 and Kim et al. disclose in Figure 4A the formation of aperture in the reflective region.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a transflective liquid crystal display device as taught by Nakagi wherein the backlight source is a three-peak type LED backlight as taught by Chang et al. and to form aperture in the reflective region as taught by Kim et al., since Chang et al. teach that by using the three-peak type LED backlight together with the color filters enhances the color saturation of the display device (Column 7, lines 46-47) and Kim et al. teach that by forming

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aperture in the reflective region helps to adjust the characteristics of color and the brightness of the display device (Paragraph 0053).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagi (JP 2001-281648) and Chang et al. (US 6867833) in view of Kim et al. (US 2002/0018159).

Nakagi and Chang et al. disclose all of the limitations set forth in claim 3, but fail to disclose an aperture formed in each of the reflective regions.

However, Kim et al. disclose in Figure 4A the formation of aperture in the reflective region.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a transfective liquid crystal display device as taught by Nakagi and Chang et al. wherein aperture is formed in the reflective regions as taught by Kim et al., since Kim et al. teach that by forming aperture in the reflective region helps to adjust the characteristics of color and the brightness of the display device (Paragraph 0053).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagi (JP 2001-281648) in view of Kim (US 2002/0003596).

Nakagi discloses all of the limitations set forth in claim 5, but fails to disclose that the second colored layer is formed on the first colored layer in each transmissive region.

However, Kim teaches in Figure 7c and Paragraph 0037 of forming a second layer in each transmissive region of the color filter layer.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a color filter as taught by Nakagi wherein the second colored layer is formed in each transmissive region of the color filter layer as taught by Kim, since Kim teaches that by forming the color filter in the transmissive region thicker helps unify the color purity property of the display device regardless of the display device being in transmissive mode or reflective mode (Paragraph 0032).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagi (JP 2001-281648) in view of Kim et al. (US 2002/0018159).

Nakagi discloses all of the limitations set forth in claim 5 and further disclose in Paragraph 0032 that the transmissive region and the reflective region in each of the picture elements of at least one color comprise a single coloring agent.

Nakagi fails to disclose that each of the reflective regions has an aperture region.

However, Kim et al. disclose in Figure 4A the formation of aperture in the reflective region.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a color filter as taught by Nakagi wherein aperture is formed in the reflective regions as taught by Kim et al., since Kim et al. teach that by forming aperture in the reflective region helps to adjust the characteristics of color and the brightness of the display device (Paragraph 0053).



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Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagi (JP 2001-281648) in view of Kashiwazaki (US 6475683).

Nakagi discloses all of the limitations set forth in claim 10, but fails to specifically disclose that a red colored layer containing a pigment having a quinacridone skeleton is being laminated on another red colored layer.

However, Kashiwazaki teaches in Column 4 lines 27-34 the use of color filter layers containing a pigment having a quinacridone skeleton.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a color filter as taught by Nakagi wherein a colored layer containing a pigment having a quinacridone skeleton is being used as taught by Kashiwazaki, since Kashiwazaki teaches that the use of organic pigments in color filters helps to improve the color tone (Column 4, lines 37-38).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagi (JP 2001-281648) in view of Iijima (US 6909479).

Nakagi discloses all of the limitations set forth in claim 5 and further disclose in Paragraphs 0032-0036 that a second layer of colored layer is laminated on each of the color filters of red, green and blue colored layers.

Nakagi fails to specifically disclose that the area of a coloring agent laminated on the blue colored layer is smaller than that laminated on the red colored layer.

However, Iijima teaches in Column 5 lines 49-52 of forming blue color filters having smaller areas than that of the red color filters.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a color filter as taught by Nakagi wherein the area of a coloring agent laminated on the blue colored layer is smaller than that laminated on the red colored layer as taught by Iijima, since Iijima teaches that such configurations produces excellent color reproduction and high display quality (Column 5, lines 59-61).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagi (JP 2001-281648) in view of Narutaki et al. (US 6624860).

Nakagi discloses all of the limitations set forth in claim 5, but fails to specifically disclose that the color filter has a picture element having a chromaticity difference of less than 0.001.

However, Narutaki et al. teach in Column 45 lines 60-66 a transfective liquid crystal display device, wherein the chromaticity difference between the transmissive region and the reflective region is set to be as small as possible, thereby implies an overlapping of ranges with the claimed chromaticity difference of less than 0.001. *see MPEP §2144.05 (I. Overlap of Ranges)*

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a color filter as taught by Nakagi wherein the chromaticity difference between the transmissive region and the reflective region is as small as possible as taught by Narutaki et al., since Narutaki et al. teach that a high visibility can be obtained in various environments (Column 45, lines 66-67 and Column 46, lines 1-11).

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Ying P. Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WPC  
10/17/05

Wen-Ying P Chen  
Examiner  
Art Unit 2871

  
**ROBERT KIM**  
**SUPERVISORY PATENT EXAMINER**